Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

William J. Museler
Site Vice President, Watts Bar Nuclear Plant

MAR 28 1994

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of the Application of	)	Docket Nos. 50-390
Tennessee Valley Authority	)	50-391

WATTS BAR NUCLEAR PLANT (WBN) - DIVIDER BARRIER SEAL - PROBLEM EVALUATION REPORT (PER) WBPER910217 REVISION 3 - INTERIM REPORT

The purpose of this letter is to notify NRC that additional time is needed to determine whether the deficiencies described in the subject PER could have created a substantial safety hazard, if left uncorrected. This letter is being submitted under the requirements of 10 CFR 50.55(e)(1)(ii).

WBPER910217 R3 identified damage (small cuts) in the Ice Condenser elastomer coated fabric barrier seal due to excessive torque applied to the seal clamp hold down nuts during initial installation. The purpose of the barrier seal is to provide a reasonably tight seal to prevent steam and hot gas bypass around the Ice Condenser for the first 12 hours after a Loss of Coolant Accident (LOCA). This is necessary to assure containment analysis assumptions are not violated.

As part of the PER corrective actions, the seal material was tested in a conservative manner designed to envelop accident temperature and pressure conditions in a physical configuration emulating the as-constructed seal installation. This test was conducted after the seal specimens were artificially aged (both thermal and radiation) to greater than the equivalent 40 years normal operation plus accident conditions. Seal damage was induced to the specimens according to the conditions found from inspection of approximately 10 percent (160) of the clamps on the seal. Three levels of damage were tested, i.e., compression marks, 1/8 inch cuts (in 5 cases found), and 2 inch cuts (in 2 cases found). The test results revealed that

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the conditions found during the previous inspection would cause some leakage from cuts, but would not cause the barrier seal to fail. The testing showed that the specimens with 1/8 inch cuts leaked, but did not propagate. The specimens with 2 inch cuts leaked, but only propagated in clamp areas where the pigtail stitching had been removed.

The potential for tear propagation in the vulcanized field splice areas was attributed to the lack of stitching on the back side of the seal, which had to be removed during assembly to facilitate the vulcanization process. Cuts in this area when greater than 1/8 inch potentially could cause the seal to fail in a manner which would exceed the bypass area assumed by the Westinghouse containment analysis. These cuts which would exist under the clamps, could tear in a diagonal direction to the next clamp. Due to the limited air volume under pressure (energy) in the test rig compared to the energy during a LOCA, the extent of tear propagation in the seal material along the length of the seal could not be demonstrated. Therefore, TVA has conservatively assumed there will be tear propagation from one clamp in the seal to another. Since the previous inspection did not specifically look in the vulcanized field splice areas, TVA believes that it is necessary to inspect the Unit 1 seal in these areas to see if any damage greater than 1/8 inch is present.

Because Containment will not be available for inspection until after Hot Functional Testing (HFT), TVA has established the date to complete inspection of the barrier seal near the vulcanized field splices as 90 days following completion of HFT. At that time, TVA will have the necessary information to determine if the condition could have caused a substantial safety hazard. A final reportability determination will be made within two weeks following the inspection completion date and NRC will be notified as required by 10CFR50.55(e).

If you have any questions, please contact P. L. Pace at (615) 365-1824.

Very truly yours,

W. J. Museler

William J. Museler

Enclosure
cc: See page 3

cc (Enclosure):
NRC Resident Inspector
Watts Bar Nuclear Plant
Rt. 2, Box 700
Spring City, Tennessee 37381

Mr. P. S. Tam, Senior Project Manager
U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852

U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

ENCLOSURE

LIST OF COMMITMENTS

1. Because Containment will not be available for inspection until after Hot Functional Testing (HFT), TVA has established the date to complete inspection of the barrier seal near the vulcanized field splices as 90 days following completion of HFT.

2. A final reportability determination will be made within two weeks following the inspection completion date and NRC will be notified as required by 10CFR50.55(e).